Can I safely use a straight (Type 1) metal cutoff wheel in angle grinder?

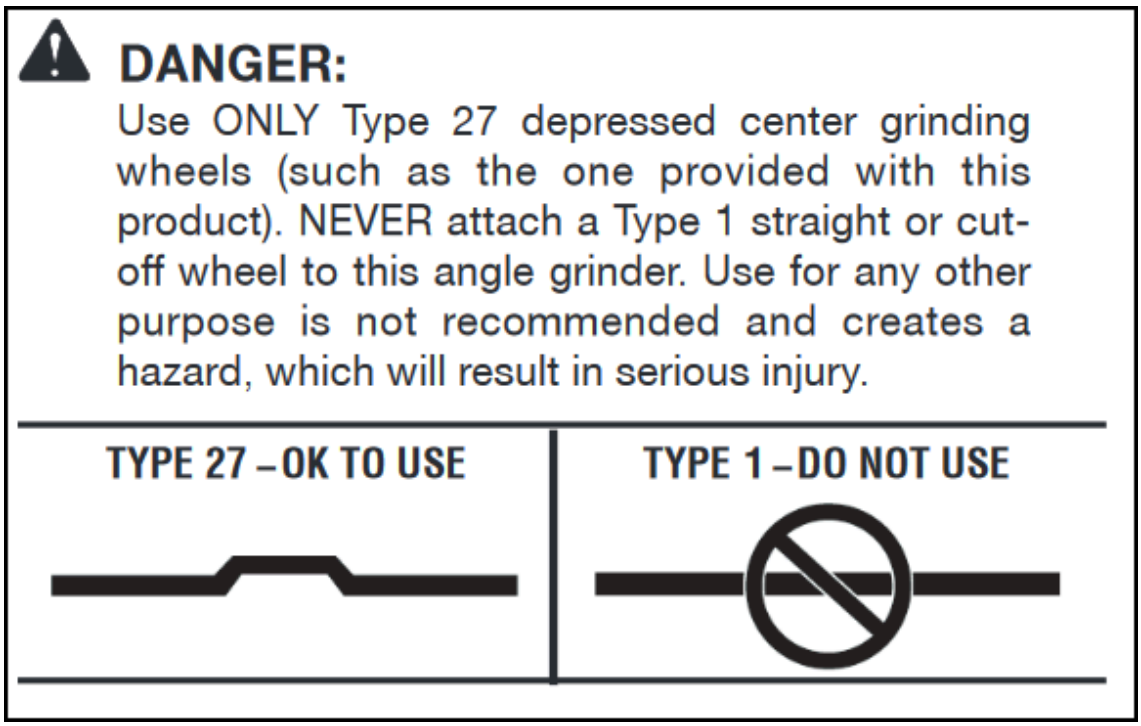
Asked 5 years, 9 months ago Modified 3 years ago Viewed 27k times

4

I have a Ridgid angle grinder and a metal cutoff wheel.

On page 7 of the manual it states:

> Use ONLY Type 27 depressed center grinding wheels (such as the one provided with this product). NEVER attach a Type 1 straight or cut-off wheel to this angle grinder. Use for any other purpose is not recommended and creates a hazard, which will result in serious injury.


DANGER:
Use ONLY Type 27 depressed center grinding wheels (such as the one provided with this product). NEVER attach a Type 1 straight or cut-off wheel to this angle grinder. Use for any other purpose is not recommended and creates a hazard, which will result in serious injury.
TYPE 27 – OK TO USE
TYPE 1 – DO NOT USE

After reading some online forums, asking some contractor friends, and watching YouTube videos it seems that everyone simply uses a Type 1 wheel to cut metal and move on with their life.

PS: *I won't acknowledge the countless people that use an angle grinder without the guard. I will absolutely be putting the guard in the correct position.*

As far as I can tell I just have to reverse the clamp nut and it securely holds the Type 1 cutoff wheel in place.

Am I using the wrong tool or wrong cutoff wheel or are there simply so many more Type 1 wheel accidents that companies just try to distance themselves from Type 1?

Even the cutoff wheel packaging says "for use with angle grinders" and has a picture of an angle grinder.

Important: I am trying to solicit authoritative answers which can properly explain why one should not use a Type 1 disc. I do not wish for polling answers such as "I've done it so you're fine".

safety powertools cutting angle-grinder

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edited Nov 25, 2019 at 20:45

asked Nov 25, 2019 at 19:57

MonkeyZeus
17.3k 3 28 66

I looked at a popular corded angle grinder from Makita and the manual doesn't have the same warning. – JPhi1618 Nov 25, 2019 at 20:08

@JPhi1618 I can't find it right now but one forum mentioned that Dewalt makes an angle grinder for which you can special order parts to convert it to accept Type 1 discs. – MonkeyZeus Nov 25, 2019 at 20:19

If you look at this manual for a cordless Makita grinder, it looks like there is a special operation you need to do with the guard when switching to a depressed center disk. I didn't totally understand what was going on, but maybe the Rigid lacks that kind of flexibility. Is there a Home Depot nearby that you could go to and look at the grinder? They sell loose cut off wheels, so you should be able to try and fit a type 1 and type 27 to the tool and see what happens. – JPhi1618 Nov 25, 2019 at 20:22

@JPhi1618 I have both the tool and cutoff wheel in my possession. Are you referring to page 21, part #13 of the Makita manual? – MonkeyZeus Nov 25, 2019 at 20:25

I was talking about the ~page 10 area, but yea, I see the extra "shrouded" guard on page 21. Full disclosure - I don't know why it says you cant - I'm as curious as you are. If you look at some YouTube reviews of the tool, people sure do use it with a flat cut off disk. I'm sure no one read the manual... – JPhi1618 Nov 25, 2019 at 20:34

4 Answers

Sorted by: Highest score (defau

5

I think I have enough research to make an answer to this. I believe it comes down to the guard available for this tool and it not meeting the requirements for a "Type 1" cut off disk.

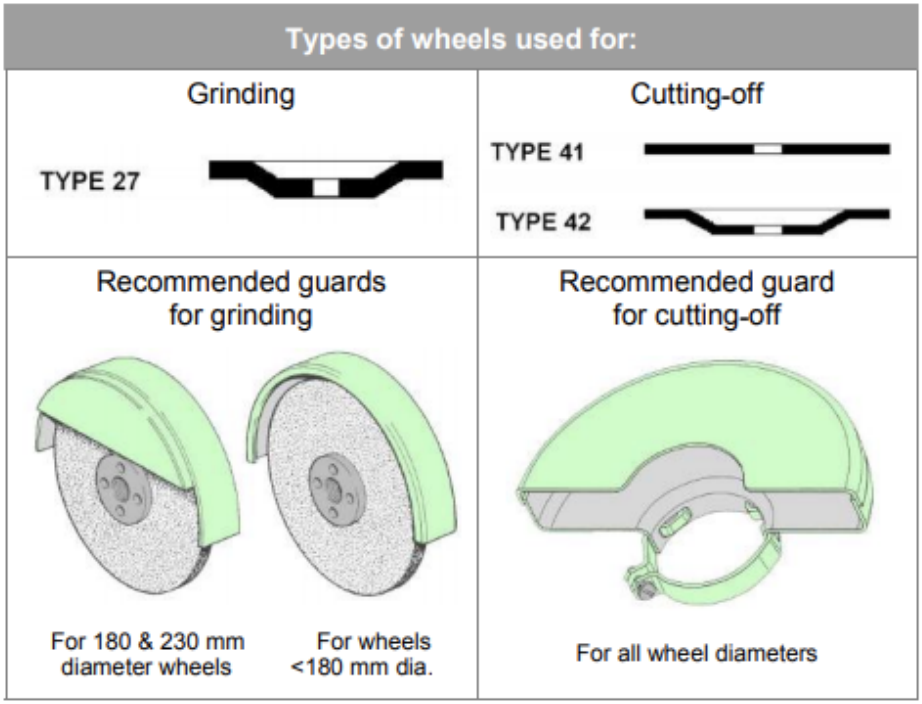
This Ridgid forum has what is supposed to be a quote from Ridgid:

> The RIDGID R1001 Angle Grinder has an included type 27 guard and is certified to Underwriters Laboratories (U.L.) product safety standards. U.L. requires only type 27 depressed center grinding wheels be used with type 27 guards. Type 1 straight or cut-off wheels have no depressed center posing a safety concern to the operator when connected to a type 27 guard. In no circumstance should a type 1 straight cut-off wheel

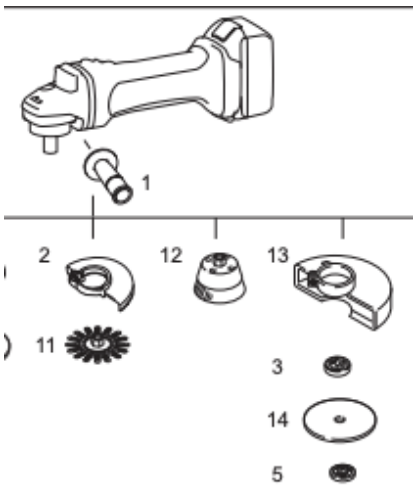
be used with a type 27 guard. Please contact RIDGID customer for further assistance: 866-539-1710.

This is for a different model, but it does show that they do limit the wheels on their tools based on the guards.

I also found this PDF from an abrasives saftey site that shows an enclosed guard is used for cutoff wheels:



I also found a Makita manual that shows an optional enclosed guard for cut off wheels (#13):



And here is that product sold seperately:

So, all of that points to the guard being the "breaking point" for the type 1 disc support. This is probably because the company had some legal issue in the past so they have decided to officially not support that type of disk with their tools while other brands are happy to sell different guards (speculation alert).

I guess what it comes down to is trusting the included guard to contain the explosion of a cracked type 1 disc.

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answered Nov 25, 2019 at 20:56

JPhi1618
28.4k 5 56 94

Thank you for this. I think that we've hit the nail on the head. I Googled "type 1 cut off wheel guard" and came across nortonabrasives.com/en-us/resources/expertise/... which seems to give a nice explanation to back up your research – MonkeyZeus Nov 25, 2019 at 21:04

There could be additional reasons to not use the disk, but this seems like the most talked about. – JPhi1618 Nov 25, 2019 at 21:05

Now to figure out why the open-sided guard is unsuitable for use if neither you nor another person is exposed to that side. I'm going to give Ridgid a call later today and see what they have to say about this topic; hopefully it's not some scripted legalese. – MonkeyZeus Nov 25, 2019 at 21:08

Type 1 cutoff wheels are too close when mounted in a type 27 guard, the wheel can flex into the guard while cutting causing an accident. Type 27 cutoff wheels are common, and offset just like the grinding wheels for safe distance from the guard. – Matthew Gauthier Nov 25, 2019 at 22:28

@MatthewGauthier Thanks for the input - I was at a home improvement store last night and I did see the offset cutoff wheels. I never knew they existed and had never looked for them because I always reach right for the flat discs. – JPhi1618 Nov 26, 2019 at 15:50

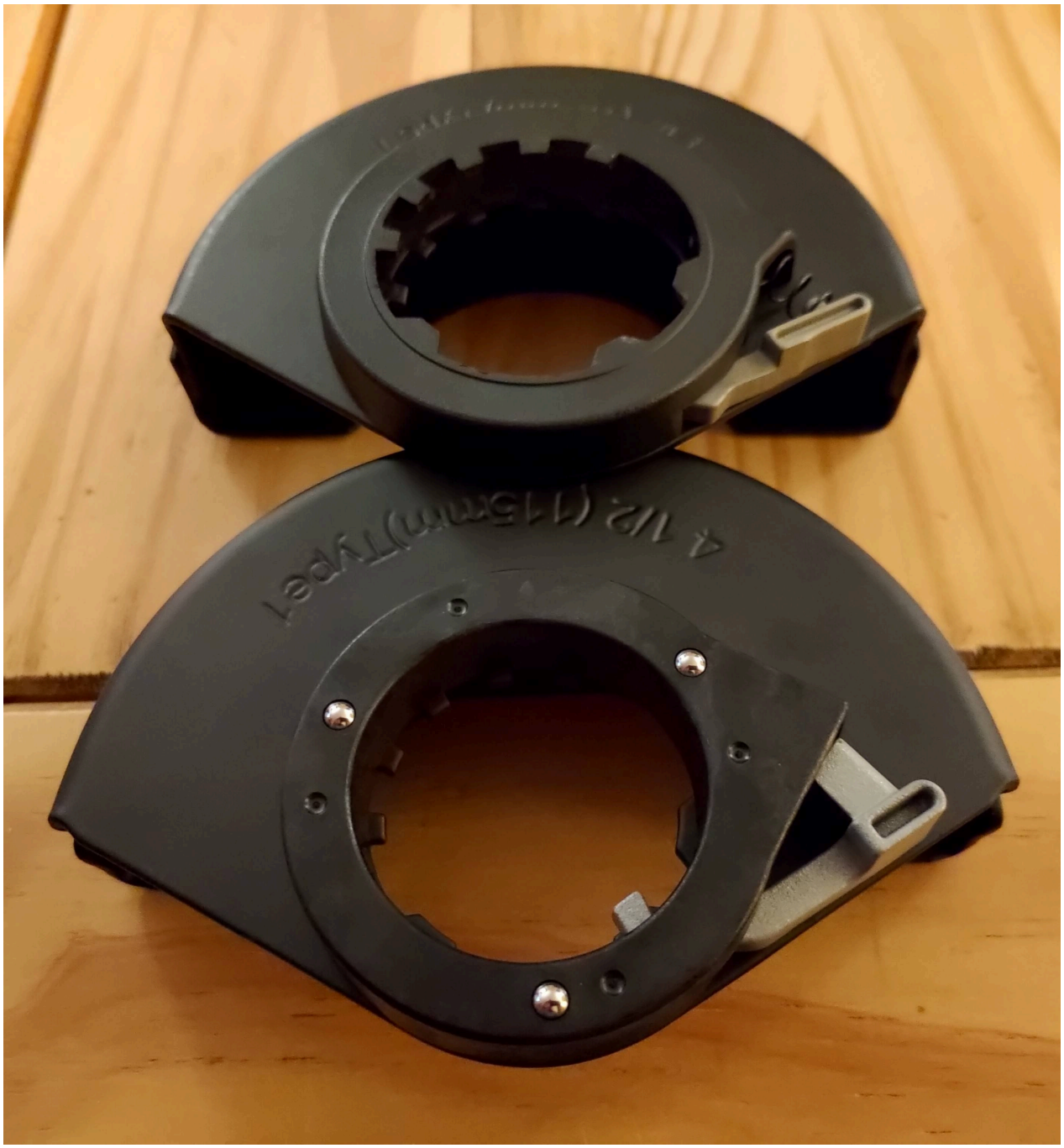
3

Just found that the Milwaukee 43-54-1090 guard is the exact fit for (at least 18v R86041) 4.5" Ridgid angle grinders. The 43-54-0920 is similar, but the hole is smaller and the cutouts are only on top.

They run about $15-$20 + shipping/taxes. Flange nut provided works for depressed and non depressed disks. Reverse and mount. The flange nut design has a recessed center on the flat side to act as the seal for thin blades (like my Type 1 .045 thick cut off discs) as it can securely clamp them in without any other movement.

1090 on left, OEM Ridgid on right.

1090 on top with top+bottom cutouts, 0920 on bottom with bottom cutouts only and smaller diameter hole.



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edited Sep 6, 2020 at 7:01

answered Sep 6, 2020 at 5:58

Timothy
31 2

1 Hello, and welcome to Home Improvement. This sounds like an extended reply to one of the other answers, rather than an answer itself; would you edit it to be a stan-alone answer? And, you should probably take our tour so you'll know how best to contribute here. – Daniel Griscom Sep 6, 2020 at 10:34

1 The answer is because you can use a type 1 cutting disc without a proper guard, but this is a proper guard that fits more recent Ridgid grinders. It is an available item that gives proper coverage against disc blowouts and the flange that is provided with Ridgid grinders properly seats type 1 discs. – Timothy Sep 7, 2020 at 19:57

Thanks; you should edit this into your answer. – Daniel Griscom Sep 8, 2020 at 0:13

3

You can, and I have done so to cut hundreds of masonry pavers. **The problem is that the nut cannot be adequately tightened to ensure safety, and you'll flex the blade, potentially damaging it and causing injury.** If you can avoid those issues with solid backing and positive centering there's no reason you can't use flat blades.

One solution would be to install a washer (or stack of them) to fill the recessed cavity behind the blade, then tighten the nut. If it's a high-quality steel blade, and not fiber, this probably isn't necessary. As I mentioned, I wore through several diamond masonry blades in my 7" grinder with no issues.

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edited Aug 30, 2022 at 12:37

answered Nov 25, 2019 at 20:07

isherwood
160k 9 194 471

> Thank you for this answer but the solution seems to introduce hackiness which I am not comfortable doing to a 10k rpm wheel of death. Take note of page 34 in the manual I linked. If I place the disc onto the disc flange (J) and reverse the clamp nut (B) then the disc rests flush against the large outer surface of J and B. – MonkeyZeus Nov 25, 2019 at 20:16

> The manual doesn't have that many pages, but the outcome is the same anyway assuming that you have solid metal and positive centering. FYI, "flush" is not a synonym for "tight to". – isherwood Nov 25, 2019 at 20:31

> I think flush was the wrong word. The disc lays flat on part J, the inner circle of J goes through the center of the disc and is the same thickness as the disc, and part B threads flat and tight onto the disc. I am unable to wobble the disc with my hand and it looks perfectly straight when running at max rpm. – MonkeyZeus Nov 25, 2019 at 20:51

1

A flat cut off will work but the user is at serious risk of injury... because IF, for ANY REASON the medium you are working on causes that thin, brittle disc to break apart while spinning at high R.P.M., it is now shrapnel. Better hope your guard is between the tool and your face- OUCH! (I have seen E.R. pictures where chunks even penetrated full face shields). IF a decent size piece hits a finger you will probably loose it. Dont believe me? google it OR dig out your dremel grab a disc see how easily it breaks it to dust in your fingers. Yes, it's much smaller and the larger ones are usually reinforced but it's still the same concept. Yes, it will work but straight wheels are not designed for lateral stress and IF it fails, your screwed

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answered Oct 28, 2020 at 21:04

Tom W.
11 1

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